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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,420	08/23/2006	Shoichi Kishimoto	14434.107USWO	7030
52835 7590 09/18/2007 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902 MINNEAPOLIS, MN 55402-0902			EXAMINER HOBAN, MATTHEW E	
			ART UNIT 1709	PAPER NUMBER
			MAIL DATE 09/18/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/590,420

Applicant(s)

KISHIMOTO ET AL.

Examiner

Matthew E. Hoban

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 8/23/2006 11/21/2006.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Status of Application***

Claims 1-18 are pending and presented for examination.

### ***Priority***

1. A quotation from Yoshiko Kuwahara of WIPO on Form PCT/IB/373 concerning this application:

#### **Claims 1-18**

The invention relating to an optical fiber using the glass composition of the invention of the subject application is not disclosed in the previous application document, based on which the priority right is claimed. So, it is considered that this invention was firstly disclosed by the specification and drawings at the time of the international filing date of the subject application (please see paragraphs [0039]-[0045] and Fig. 4, etc.). Therefore, although the reference date for judgment of the novelty and inventiveness of the bulk glass using the glass composition of the invention of the subject application is the filing date of the previous application document, based on which the priority right is claimed, the novelty and inventiveness of the subject matters of claims 1-18 are to be judged considering the international filing date as a reference date because these matters include inventions which are not disclosed in the previous application document, based on which the priority right is claimed.

Therefore, in this respect, the claim of priority cannot be accepted.

In light of this, the International Filing date will be held as the effective filing date of the application, until a certified translation of the foreign priority document is received.

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) was submitted on 11/21/2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 uses the phrase "main component" in its recitation of the instant subject matter. It is currently undefined what this refers to since no definition is given to what constitutes being a main component, and also to what the main component is attributed to. If this term is to be used a specific quantity should be used as well as to what this quantity refers to. For example, this could be a main component in terms of composition, functionality or criticality. All of these roles can be mutually exclusive. Proper correction is required.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that forms the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-18 are rejected under 35 U.S.C. 102(e) as anticipated by Kakui et al in US Patent Number 7,170,674 B2.

The claims of the instant application are drawn to a glass composition to be used in an optical fiber or optical amplifier, where the composition has the following characteristics:

- Optical Absorption Peak: 400-1100 nm
- Fluorescence Peak: 900-1600 nm (where, incident light is 900-1600 nm)
- FWHM: >320 nm
- Amplification obtained b/w 900-1600 nm
- Composition (in mol %)
  - 3-40% monovalent (MgO, CaO, SrO, BaO, or ZnO) or divalent (Li<sub>2</sub>O, Na<sub>2</sub>O or K<sub>2</sub>O) metal oxide
  - .01-5% bismuth oxide
  - .5-33% aluminium oxide
  - 40-85% germanium dioxide

In regards to claims 1-7, and 9-15: Kakui et al teaches compositions that are directly relevant to the claimed subject matter. One of these compositions, denoted as glass sample D, has the following properties:

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- Optical Absorption Peak: 500 and 700 nm (Column 5, Lines 65-67)
- Fluorescence Peak: 1320 nm (using 800 nm laser light) (Column 5, Lines 31-33 and Figure 1)
- FWHM: ~345 (Figure 1, calculated using method disclosed in Specification of instant application)
- Amplification obtained in O band, 1260-1360 nm (Column 5, Lines 31-34)
- Composition (in mol %) (Column 5, Lines 21-24)
  - 5% Na<sub>2</sub>O
  - .8% bismuth oxide
  - 5% aluminium oxide
  - 90% Germanium dioxide

The specification and claims state that a minimum of 50 mol % germanium dioxide is necessary to make the invention of Kakui (See Abstract, Summary of the Invention Column 2, Lines 22-25, Description of the invention Column 4, Lines 58-62 and Column 16, Lines 4-6, or Claim 1). The difference between the instantly claimed range and the composition given in the specific example D in Kakui's Patent is 5%. In light of the fact that it is explicitly stated that the amount of germanium dioxide can be as low as 50 mol percent, the composition as claimed by the instant application is not patently distinct over the teachings of Kakui. This is due to the fact that Kakui discloses that the invention is useful down to 50 mol %, and for this reason effectively teaches the range from 50-90 mol% of germanium dioxide. Thus, the properties, performance and composition of the two products are exactly the same.

In regards to claims 1-8, and 10-15: Kakui et al teaches compositions that are directly relevant to the claimed subject matter. Another of these compositions, denoted as glass sample F, has the following properties:

- Optical Absorption Peak: 500 and 700 nm (Column 5, Lines 65-67)
- Fluorescence Peak: 1250 nm (using 800 nm laser light) (Figure 2)
- FWHM: ~330 (Figure 2, calculated using method disclosed in Specification of instant application)
- Amplification obtained around Fluorescence Peak @ 1250 nm (Figure 2)
- Composition (in mol %) (Column 5, Lines 21-24)
  - 5% CaO
  - .8% bismuth oxide
  - 5% aluminium oxide
  - 90% Germanium dioxide

The specification and claims state that a minimum of 50 mol % germanium dioxide is necessary to make the invention of Kakui (See Abstract, Summary of the Invention Column 2, Lines 22-25, Description of the invention Column 4, Lines 58-62 and Column 16, Lines 4-6, or Claim 1). The difference between the instantly claimed range and the composition given in the specific example F in Kakui's Patent is 5%. In light of the fact that it is explicitly stated that the amount of germanium dioxide can be as low as 50 mol percent, the composition as claimed by the instant application is not patently distinct over the teachings of Kakui. This is due to the fact that Kakui discloses

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that the invention is useful down to 50 mol %, and for this reason effectively teaches the range from 50-90 mol% of germanium dioxide. Thus, the properties, performance and composition of the two products are exactly the same.

In regards to claim 16-18: Kakui et al teach that the optical amplifier fibers can be comprised of any of the disclosed embodiments of their invention, where compositions D, F and G of their disclosure uses germanium dioxide as a glass network former, bismuth oxide as a fluorescing source, and aluminium oxide as a deflocculant (see column 5 and column 8, line 38-40). It is taught that the optical amplification fibers can guide pumping light (injected excitation light) and signal light while being able to optically amplify the signal light when supplied with the pumping light.

In regards to all of the above: Therefore the claimed invention has been readily envisaged at the time the invention was made. Even if there is some difference in the amount of glass network former, a small change in the amount of glass network former does not constitute a critical change in the composition of the glass. The germanium dioxide is only as a networking agent, where the aluminium oxide, bismuth oxide, and the monovalent or divalent oxide are critical, wherein they respectively prevent flocculation of Bi, fluoresce, and increase homogeneity. Germanium dioxide is only necessary to the point, where it performs its purpose as a glass network former, which it is capable of doing at 90%, but also at a concentration of 50%, as is disclosed by Kakui.



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For this reason, the difference does not render the instant application as patentably distinct. Therefore, the claims are properly rejected over the teachings of the prior art on the record

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-18 rejected under 35 U.S.C. 103(a) as being unpatentable over Kakui et al in Patent Number 7,170,674.

The claims of the instant application are drawn to a glass composition to be used in an optical fiber or optical amplifier, where the composition has the following characteristics:

- Optical Absorption Peak: 400-1100 nm
- Fluorescence Peak: 900-1600 nm (where, incident light is 900-1600 nm)
- FWHM: >320 nm
- Amplification obtained b/w 900-1600 nm
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  - 40-85% germanium dioxide

In regards to claims 1-7, and 9-15: Kakui et al teaches compositions that are directly relevant to the claimed subject matter. One of these compositions, denoted as glass sample D, has the following properties:

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  - 5% Na<sub>2</sub>O
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In regards to claims 1-8, and 10-15: Kakui et al teaches compositions that are directly relevant to the claimed subject matter. Another of these compositions, denoted as glass sample F, has the following properties:

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- Amplification obtained around Fluorescence Peak @ 1250 nm (Figure 2)
- Composition (in mol %) (Column 5, Lines 21-24)
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- .8% bismuth oxide
- 5% aluminium oxide
- 90% Germanium dioxide

In regards to claim 16-18: Kakui et al teach that the optical amplifier fibers can be comprised of any of the disclosed embodiments of their invention, where compositions D, F and G of their disclosure uses germanium dioxide as a glass network former, bismuth oxide as a fluorescing source, and aluminium oxide as a deflocculant (see column 5 and column 8, line 38-40). It is taught that the optical amplification fibers can guide pumping light (injected excitation light) and signal light while being able to optically amplify the signal light when supplied with the pumping light.

The difference between Kakui and the instant claims is the fact that the instant claims uses 40-85 mol %, while Kakui's specific example uses 90% germanium oxide.

However, Kakui teaches that other oxides can be used interchangeably as a glass network former. Specifically Kakui teaches that Silica and  $P_2O_5$  are suitable as substitutes. This lesson is obvious throughout the application. Kakui goes on to teach the following compositions:

Composition I

- 30% BaO
- .8% bismuth oxide

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- 10% aluminium oxide
- 60%  $P_2O_5$

Composition J

- 15%  $B_2O_3$
- .8% bismuth oxide
- 5% aluminium oxide
- 80% silica

Composition K

- 40%  $Na_2O$
- .8% bismuth oxide
- 5% aluminium oxide
- 55% silica

It would be obvious to one of ordinary skill in the art to replace the  $P_2O_5$  or alternatively the silica, in one the preceding example with germanium dioxide, since the three species of oxides are all equally suitable at forming a glass network. Upon doing so, a composition reading exactly on the claims of the instant application would be obtained. Furthermore, according to Kakui and Figures 3 and 5, the I and J compositions above have optical properties substantially similar to those of compositions D and F mentioned above. The interchanging of these species would be

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well within the capabilities of anyone experienced in the forming process of optical fibers, as these three substances are used quite often in the optics industry.

The motivation to use the above mentioned oxides interchangeably comes from the need for glass compositions with different thermal and chemical resistance. Phosphorus Pentoxide for example is reactive with water and can form phosphoric acid under certain conditions. When needed in such an atmosphere, a substance such as germanium dioxide would be much more suitable. Furthermore, if the composition was needed in an environment, which was strongly oxidizing, germanium would not be used and silica would be useful. The interchangeability of these oxides, as Kakui gives the engineer or scientist the flexibility to substitute the glass forming agent based on the needs of the client and the parameters set forth by the environment. For this reason it would be obvious to substitute germanium dioxide into Composition I-K.

### ***Double Patenting***

1. Claims 1-4, and 6-18 of this application conflict with claims 1-14, 17-18 and 21 of Application No. 10/540048 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

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2. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

3. Claims 1-4, and 6-18 provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-14, 17-18 and 21 of copending Application No. 10/540048. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Both applications claim the same subject matter, where germanium dioxide is used as a glass network former in the glass composition. All other components of the structure are the same, although claimed in a slightly different fashion. However, the claimed subject matter of 10/540048 is broader than that of the instant application, also claiming phosphorus pentoxide, boron oxide, and tellurium dioxide as network formers in the glass composition, and thus the scope of the claims found in both applications are overlapping and does not render the instant claims as patentably distinct over the claims of '048 application.

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**Conclusion**

IN RETROSPECT claims 1-18 are rejected based on 35 USC 102/103.

Claims 1-4, and 6-18 are also provisionally rejected under 35 U.S.C. 101

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Hoban whose telephone number is (571) 270-3585. The examiner can normally be reached on Monday - Friday from 7:30 AM to 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
VICKIE Y. KIM  
SUPERVISORY PATENT EXAMINER